

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (Previously Presented) A process for the separation of cobalt and/or manganese from impurity elements selected from one or more of calcium and magnesium contained in a leach solution, or for separating cobalt from manganese contained in a leach solution, the process comprising the step of subjecting the leach solution to solvent extraction using an organic solution of a carboxylic acid and an aliphatic hydroxyoxime.
2. (Previously Presented) The process of claim 1, wherein cobalt poisoning as a result of oxidation of cobalt(II) to cobalt(III) is avoided.
3. (Currently Amended) The process of claim 1 ~~or 2~~, wherein the solvent extraction of the leach solution with the organic solution produces an organic phase and an aqueous raffinate, and wherein all of the organic phase is subjected to stripping with an acid solution to strip cobalt from the organic phase.
4. (Previously Presented) The process of claim 3, wherein the stripping with the acid solution is preceded by scrubbing of the organic phase.
5. (Currently Amended) The process of claim 3 ~~or 4~~, wherein the stripping with the acid solution is preceded by a selective stripping stage.
6. (Currently Amended) The process of ~~any one of claims 1 to 5~~ claim 1, wherein the organic solution displays fast extraction kinetics for copper, cobalt, zinc and manganese.
7. (Currently Amended) The process of ~~any one of claims 1 to 6~~ claim 1, wherein the organic solution is in contact with the leach solution for a period of 5 minutes or less.

8. (Previously Presented) The process of claim 7, wherein the organic solution is in contact with the leach solution for a period of 3 minutes or less.

9. (Previously Presented) The process of claim 7, wherein the organic solution is in contact with the leach solution for a period of 2 minutes or less.

10. (Currently Amended) The process of ~~any one of claims 1 to 8~~ claim 1, wherein the organic solution comprises a stabilizer against hydroxyoxime degradation.

11. (Previously Presented) The process of claim 10, wherein the stabilizer reduces oxidation and/or hydrolysis of the hydroxyoxime.

12. (Previously Presented) The process of claim 10, wherein the stabilizer is an antioxidant.

13. (Previously Presented) The process of claim 10, wherein the stabilizer is an alkylphenol.

14. (Currently Amended) The process of ~~any one of claims 1 to 13~~ claim 1, wherein the leach solution contains little nickel.

15. (Currently Amended) The process of ~~any one of claims 1 to 14~~ claim 1, wherein the leach solution contains cobalt and/or manganese, together with impurity elements selected from one or more of calcium, magnesium, (manganese) and chloride, optionally together with copper and/or zinc.

16. (Currently Amended) The process of ~~any one of claims 1 to 15~~ claim 1, wherein, the leach solution contains the following levels of elements:

Ni: 0 - 100 ppm

Co: 100 ppm – 5 g/L

Cu: 0 - 100 ppm

Zn: 0.2 - 2 g/L

Ca: 1ppm - saturated

Mn: 0.2 - 50 g/L

Mg: 1ppm - 100 g/L

17. (Currently Amended) The process of ~~any one of claims 1 to 16~~ claim 1, wherein the leach solution is a solution that has been subjected to a preliminary iron and/or aluminium precipitation step to precipitate out iron and/or aluminium to leave an aqueous leach solution containing the target elements and impurity elements.

18. (Currently Amended) The process of ~~any one of claims 1 to 17~~ claim 1, wherein the carboxylic acid is 2-methyl, 2-ethyl heptanoic acid or a cationic exchange extractant having extraction characteristics similar to 2-methyl, 2-ethyl heptanoic acid.

19. (Currently Amended) The process of ~~any one of claims 1 to 18~~ claim 1, wherein the hydroxyoxime is a chelating α -hydroxyoxime.

20. (Currently Amended) The process of ~~any one of claims 1 to 19~~ claim 1, wherein the leach solution contains cobalt and manganese, and the pH of the aqueous phase in the solvent extraction step is maintained in the range of from 5.5 to 7.0 to effect extraction of the cobalt and manganese into the organic phase.

21. (Previously Presented) The process of claim 20, wherein the pH of the aqueous phase in the solvent extraction step is maintained in the range of from 5.8 to 6.3.

22. (Currently Amended) The process of claim 20 ~~or claim 21~~, wherein the organic phase containing cobalt and manganese is subjected to selective stripping to separate to a significant extent the cobalt from the manganese.

23. (Previously Presented) The process of claim 22, wherein the selective stripping comprises contacting the organic phase from the solvent extraction with an acidic aqueous solution to yield

(a) a loaded strip liquor containing manganese and (b) a selectively stripped organic solution containing cobalt.

24. (Previously Presented) The process of claim 23, wherein the acidic aqueous solution used in the selective stripping has a pH in the range of 4.0 to 5.0.

25. (Currently Amended) The process of ~~any one of claims 1 to 19~~ claim 1, wherein the leach solution contains cobalt and manganese, and the pH of the aqueous phase in the solvent extraction step is maintained in the range of from 3.5 to 5.0 to effect extraction of cobalt into the organic phase and rejection of manganese to the aqueous phase.

26. (Previously Presented) The process of claim 23, wherein the cobalt is recovered from the organic phase by bulk stripping.

27. (Currently Amended) The process of ~~any one of claims 1 to 26~~ claim 1, wherein the leach solution comprises zinc and/or copper, the zinc and/or copper are extracted into the organic phase with the cobalt in the solvent extraction step, and the zinc and/or copper are separated from the cobalt by ion exchange.

28. (Currently Amended) The process of ~~any one of claims 1 to 19~~ claim 1, wherein the leach solution comprises manganese and a low level or no cobalt, and the manganese is extracted into the organic phase to effect separation of manganese from the impurity elements calcium and/or magnesium.

29. (Currently Amended) The process of ~~any one of claims 1 to 28~~ claim 1, wherein scrubbing is conducted on the organic phase after each solvent extraction.

30. (Previously Presented) A process for the separation of zinc, copper and cobalt from impurity elements selected from one or more of manganese, calcium and magnesium contained in a leach solution, the process comprising the step of subjecting the leach solution to solvent extraction using an organic solution of a carboxylic acid and an aliphatic hydroxyoxime.

31. (Previously Presented) The process of claim 30, wherein cobalt poisoning as a result of oxidation of cobalt(II) to cobalt(III) is avoided.

32. (Currently Amended) The process of claim 30 ~~or claim 31~~, wherein the solvent extraction of the leach solution with the organic solution produces an organic phase and an aqueous raffinate, and wherein all of the organic phase is subjected to stripping with an acid solution to strip cobalt from the organic solution.

33. (Currently Amended) The process of ~~any one of claims 30 to 31~~ claim 30, wherein the organic solution displays fast extraction kinetics for copper, cobalt, zinc and manganese.

34. (Currently Amended) A product recovered by the process according to ~~any one of the claims 1 to 33~~ claim 1.